

Claims

1. Automated method for generating, from a machine-readable parameterized description of field devices, program modules for
5 controlling field devices, which are used on a control unit for the purpose of controlling the field devices, where each of the field devices incorporates control equipment with a least one micro-processor, with at least one electronic storage means and with data input and output means for communications with the control unit,
10 consisting of the following steps:
- identification of the parameters of the field device, contained in the description,
 - for each of the parameters, identification of the characteristics relevant for control purposes, namely in particular the data
15 type, size, allowed values or allowed value range,
 - generation of program modules for the control equipment of the field device, which can be executed by the field device's microprocessor and which are based, at least partially, on the identified parameters and/or the characteristics of the
20 parameters which have been identified as relevant for control purposes.
2. Method in accordance with Claim 1, whereby for at least one parameter a declaration module is generated, which reserves for the
25 parameter certain segments of the storage means and/or defines its data type and/or its size, where the storage segment reserved, the data type and/or the size correspond to the identified characteristics of the parameter.
- 30 3. Method in accordance with Claim 2, whereby for at least one parameter an access module is generated, which regulates accesses by the control equipment to the storage segment defined for the parameter in the declaration module.
- 35 4. Method in accordance with Claim 1, whereby for at least one parameter a cross-referencing module is generated, which instructs

the control equipment to execute other program modules when there is an access to the parameter.

5. Method in accordance with one of Claims 1 to 4, whereby for at least one parameter an input checking module is also generated, which can be called up by the access module and which, when a parameter is changed, checks whether the new parameter value lies within the set of allowed values or within the allowed range, as applicable.

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6. Method in accordance with one of Claims 1 to 5, whereby an error message is generated if the parameter value supplied by the control unit does not lie within the set of allowed values or lies outside the permissible range, as applicable.

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7. Method in accordance with one of Claims 1 to 6, whereby for at least one parameter a naming module is also generated, which stores on the storage means a name for the parameter, and makes it possible to access the parameter under this name.

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8. Facility for generating control modules for field devices, from a machine-readable parameterized description of the field devices, for use on control units to control field devices remotely; where each of the field devices incorporates control equipment with at least one microprocessor, with at least one electronic storage means and with data input and output means for communications with the control units, consisting of

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- input equipment for reading in and storing the description,
- a first analysis facility for identifying the parameters of the field device contained in the description,
- a second analysis facility to identify for the parameters the characteristics defined in the description as relevant for

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control purposes, namely in particular their data type, size
allowed values or allowed value range, as applicable,

- a generation facility which, for at least one of the parameters
identified in the first analysis facility, generates at least one
5 of the following program modules, which can be executed on the
field device's microprocessor:

- a declaration module which, for the parameter concerned, defines
certain segments of the storage means, its data type, its size
and/or the set of allowed values or the allowed value range, as
10 applicable,

- an access module which, for the parameter concerned, controls
accesses by the control equipment to the storage segment defined
in the declaration module, and which can instruct the control
equipment to execute other program modules when it accesses the
15 parameter.